Building Energy Codes
Building on Success

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National Energy Policy

- ## Six strategies
  - Aggressively reduce demand employing energy efficiency technologies and encourage sound conservation measures
  - Increase energy supply, with special emphasis on domestic supply.
  - Maintain a diversity of primary energy sources, to enhance energy security.

National Energy Policy

- Six strategies
    - Upgrade our national energy infrastructure to deliver energy from the source to the consumer.
    - Simultaneously building on our successful record of environmental protection.
    - Prepare for a future that moves us beyond current thinking about the sources and uses of energy.

EERE Response:

- Established consumer awareness programs that help market, promote, and create a demand for efficient products.

- Established strong partnerships with the states; including financial incentives and federal grant programs to support states and localities.

EERE Response:

- Making significant investments in research and development toward new energy efficiency products and processes.

- Developed appliance standards - reasonable but challenging

- Lead by example in striving to meet energy efficiency targets that Congress has established for federal buildings and transportation fleets.

Buildings Energy Use

- 37% of total U.S. total consumption
  - 68 percent of electricity consumption
  - Costs U.S. $240 billion

Progress in Increasing Efficiency

- Energy use/$ GDP produced fell 40%
  - 1972 - 2000
  - VS 1949 - 1972, energy use/GDP fell ~10%).
  - improvements in energy efficiency >50 % of reduction
- Without reduction (at 1972 levels),
  - US energy use would =171 quads in 2000,
  - energy efficiency improvements = 36-48 quads savings

Research and Codes Contribute

- Savings > increase in energy supply since 1972
  - 36-48 quads
  - $200-300 billion/year (assuming $6 billion/quad)
- Energy efficiency innovations now in codes
  - 2 of 3 most important since 1978
    - low-e glass   U
    - electronic ballasts   U
    - advanced refrigerators

Where do Codes Fit?

- Baseline

- Exit Strategy

- Basis for Appliance and Equipment Standards

- Standard of Professional Practice

- Technology Deployment Tool

9

Significant Progress - Residential

1975

- Glazing – U-1.13

- Wall – R-10
- Roof – R-10
- New buildings only

2000

- Glazing – U-0.9 to 0.35
  - SHGC-0.40 (<3,500 HDD)
- Wall – R-11-R-21
- Roof – R-13 to 49
- New and renovation

Significant Progress - Commercial

1975

- Glazing – U-1.13
  - Center of glass
  - SHGC - none
- Wall – U-0.34-0.20
- Roof – U-0.14-0.18
- Lighting – 4.5W/ft^2
- New buildings only

2000

- Glazing – U-1.27 to 0.34
  - Window Assembly
  - SHGC - 0.64 (<6,000 HDD)
- Wall – U-0.504-0.291
- Roof – U-0.055 to 0.028
- Lighting – 1.3W/ft^2
- New and renovation

Progress Since Last Workshop

- Alabama
  - 2000 IECC Mandatory for all construction
- Illinois
  - Chicago, Peoria and Rockford adopted 2000 IECC
- Georgia
  - Upgraded to 2000 IECC (with 2001 updates)
  - Upgraded to Standard 90.1-2001 with GA mods
  - 0.40 SHGC effective January 1, 2004

Progress Since Last Workshop

- Kansas
  - Updated to 2003 IECC
  - Kansas Energy Efficiency Disclosure an option
  - HERS compliance option (Rating of 80%)
- Michigan
  - Updated to Standard 90.1-1999 statewide (Effective April 2003)
- New Hampshire
  - Upgraded to 2000 IECC (Effective September 2002)

Progress Since Last Workshop

- North Dakota
  - Adopted 2000 International Building Code and International Residential Code
    - State and local government buildings
    - School Buildings
    - Local jurisdictions adopting a building code must also adopt

Tools And Assistance

- www.energycodes.gov
- Check products
- Hotline 1-800-270-CODE (2633)
- Technical and Financial Assistance to States
- Participation in Professional and Trade Shows
- *Setting the Standard* newsletter

Solution to Our Challenges

- Not by Federal action alone but together with
  - Private sector
  - States and local governments

Future Challenges

- Exploiting Information Technology
- Training
- Codes and beyond
- Buildings adaptable to energy interruptions

Questions?